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ABSTRACT

Explained are the rationale and procedures for determining a college student's family's ability to contribute to payment of educational costs, as structured by the Congressional Budget Office. The problems of these calculations--including difficulties in obtaining enough information about state and local taxes, and possible changes in consumption patterns--are discussed, and areas for further inquiry detailed. (MSE)

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Presentation to THE AMERICAN COUNCIL ON EDUCATION
Research/Analysis Seminar

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Congressional Budget Office
July 7, 1978

TOPIC: Ability to Pay for Student Costs of Higher Education Taking into Account Family Income After Taxes.

INTRODUCTION:

As I understand the agenda for today's seminar, we are here to discuss and compare increases in college costs and ""after-tax"" income. Before addressing how we at the Congressional Budget Office have analyzed these increases, however, I would like to interject an important caveat.

In May, C.B.O. published a paper which compared increases in educational costs with increases in family income - before taxes (see Table I). We chose to examine income before taxes rather than after taxes for a good reason, a reason that I believe is as valid today as it was when we originally opted for it. We did not believe that the data available on taxes were adequate to allow an accurate analysis of "after-tax income".

As sure as we were of our position, however, we were not able to convince others, and thus it was almost inevitable that we would need to address the question of increases in after-tax income.

WHAT WE HAVE DONE

In response to a request from Congressman Ford, who had read our paper and followed the ensuing debate on increases in income before and after taxes, we analyzed two separate aspects of the issue. First, we examined income after taxes, as best we could. And second, we examined changes in discretionary income, here focusing primarily on specific aspects of the family budget that were selected by the Congressman and his staff.

With respect to the increase in after-tax income, we had an advantage because the Congressional Research Service (CRS) had already done some preliminary work in this area and we found the CRS material useful in developing our own analysis.

Data on federal taxes are fairly sound. For the incidence of federal income tax on families with median incomes, we used the tax law in each year, assuming the "infamous" family of four taking the standard deduction. For Social Security taxes we assumed that all income in the family was attributable to one worker. To this point I believe our technique was essentially equivalent to that used by CRS.

The problem, however, is with the data (or perhaps I should say the problem is with the lack of data) on state and local taxes. Yet we did the best we could with what little data were

available. We used two techniques for estimating the change in state and local taxes. First, we used data from the Advisory Commission on Intergovernmental Relations (the ACIR), in much the same fashion as was done by CRS. Second, we used Internal Revenue Service (IRS) data to estimate the change. Let me explain further.

Using actual ACIR figures for 1953, 1972, and 1975, we estimated the portion of income going to state and local taxes from 1967 and 1976. Using this method, we estimated that state and local taxes increased from 5.6 percent of income in 1967 to 7.2 percent of income in 1976.

Our second estimating technique examined IRS data for taxpayers who claimed itemized deductions in each year from 1967 to 1976, and from this we estimated the non-federal tax payments for the median family income. This was done as follows. For each income interval, IRS provides data on the amount of non-federal tax payments from itemized returns. Selecting the interval in which the median income fell, we divided the amount of nonfederal tax payments by the number of itemized returns. This average non-federal tax amount was then divided by the mid-point of the interval to derive a non-federal tax rate, and this tax rate was then applied to the median income.

For example: Say the median income is $12,568. This falls between $12,000 and $14,000, with the mid-point being $13,000. If the average non-federal tax for itemizing families in this interval is $1,000, the non-federal tax rate is $1,000/$13,000, or 7.7 percent, and the non-federal tax liability of the median income family is estimated to be $12,568 (x) 7.7% = $967.

This IRS technique gives a higher estimate, probably because people who itemize are a somewhat unique subgroup of the population. Using this method, we estimated that non-federal taxes increased from 6.4 percent of income in 1967 to 8.6 percent in 1976.

Using these two methods of estimating, the ACIR and the IRS, allowed us to establish some bands, which give an idea of the noise involved with these estimates. On these measures, our findings are inconclusive (see Table II). In some ways, it appears that the burden has increased slightly. For example, after-tax incomes of families with 18 to 24 year-old dependents grew slightly less rapidly than college costs from 1967 to 1976. Other indicators, however, suggest that the burden has not increased. After-tax income for families with 18 to 24 year-old dependents in college increased at about the same rate as college costs, and college costs as a percent of income remained roughly constant for all families with 18 to 24 year-old dependents, whether they attended college or not.

Though these findings also indicate that the burden of college costs does not seem to be increasing, I wish to reiterate that there are serious problems with concentrating on after-tax income.

First, as I have already stated, the data on which these estimates are based is poor. Three points spread over twenty-five years are not enough to project any reliable trend. And to assume that our analysis reflects an accurate view of the world, even in the aggregate, is a mighty leap of faith. And second, aggregate national data on state and local tax liabilities do not reflect well the probable extremes in variation by state and region.

The second part of Congressman Ford's request was to look at discretionary income. Here he was referring to more than just after-tax income, which is sometimes referred to as discretionary income. He was interested, rather, in the amount of money left over for things like college after those non-discretionary components of the family budget were taken out. In particular, Mr. Ford asked us to look at housing costs, insurance costs, energy costs, and medical costs.

Upon analysis, we found in general that the costs of these components of the family budget had risen faster than incomes

(see Table III). Not including insurance costs, which are not a distinct component of the Consumer Price Index (CPI), we found that a weighted average of these expenditures increased in costs by 82 percent from 1967 to 1976. This is slightly above the increase in before-tax income of 79 percent and somewhat more above the increase in after-tax income (though to some extent the 82 percent increase captures the increased tax burden, particularly in the housing component and therefore is perhaps best compared to before-tax income).

But there are problems here also. While costs have been rising faster than income, it is unclear whether or not this has resulted in a proportional increase in the consumption of these items as a part of the family budget. First, we do not know how consumption patterns have changed. The most recent consumer expenditure survey is for 1972-1973, yet the most radical increases in costs of these various commodities have occurred since that time. And second, we do not know much about how the quality of products received has changed. For example, are people buying more house or are they paying more for the same house?

It also is unclear what costs should be considered non-discretionary. Congressman Ford did not include food, though Congressman Quie did in his request from CRS -- and indeed it seems legitimate to include food as a non-discretionary item.

Mr. Ford included medical care, which seems reasonable, except that this includes much care that may not be considered non-discretionary in nature such as orthodontia, cosmetic surgery, etc.. What I am suggesting is that it is not easy to distinguish between discretionary and non-discretionary components of the family budget.

In the May CBO paper, we used the overall CPI because it is an index of the overall cost of living. It is fairly easy to forget that some prices are not increasing as rapidly as others when obvious ones, like energy costs, are soaring out of sight. But the CPI keeps this in perspective for us -- it shows the relative effect of price increases on the total market basket.

That sums up how we looked at after-tax discretionary income.

AREAS FOR FURTHER INQUIRY

There remain, however, aspects of this question that warrant further attention and analysis.

For example, the CBO report essentially addressed per student costs, yet average family costs may be a more appropriate focus. Dr. Robert Parke of the Social Science Research Council, in recent testimony before the Select Committee on Population,

suggested that our study failed to consider an important demographic change in the population. Children of college age are now spaced more closely together than in the past and thus are more likely to be in college at the same time. His point is well taken. Using his statistics, and assuming family size has remained constant, I have derived that the average family costs have increased (before taxes) about 95 percent from 1967 to 1976, an increase well above the rise in family income. But this closer-spacing phenomenon (sibling overlap) is only a concern to the extent that college costs are expected to be paid for out of annual income as opposed to long-range family financial planning. Counterbalancing this demographic shift in spacing of children is another possible demographic phenomenon -- decreasing family size. If family size is decreasing, as it appears to be, then the family burden may actually decline over time.

There is an interesting aside to the sibling overlap phenomenon for policy analysts in higher education. If it is a temporary situation, as Dr. Parke has suggested, it makes more sense to address the problem through programs that account for its temporary nature, such as through need based programs that take into account the number of children a family has in college, rather than to address the problem through programs, such as tuition tax credits, which would have enduring consequences long after the problem has subsided.

Another aspect of this income/cost issue that deserves more critical examination is the question of what average family income means today. For example, it would be useful to know how many family members it now takes to earn the "higher" income compared to the number of wage-earners it used to take to make the old benchmark income. It would be useful to know if gains in income are the result of increases in wages or increases in labor market participation.

SUMMARY

In sum, our original statements still appear to be valid, though we might say them a bit more tentatively today than we did in May. Current evidence does not indicate that the financial burden of sending children to college has been increasing. Clearly, the common perceptions of skyrocketing costs and a pressure cooker squeeze on middle-income students in post-secondary education have not been substantiated.

But again, to say that things are not worse, is not to say that no problem exists. Things do not appear to be any better either. Certainly, it must be a burden for families with more than one student in college, but that, too, is nothing new. Though, in fact, it may be more likely now than in the past that families will have more than one child in school at a time.

TABLE I. FAMILY INCOME AND STUDENT CHARGES, CALENDAR YEARS 1967-1976

Year	Median Family Income a/ All Families (1)	Median Family Income a/ With 18-24 yr. Dependents (2)	Median Family Income a/ With 18-24 yr. Dep. in College (3)	Total Student Charges Public (4)	Total Student Charges Private (5)	Student Charges as a Percent of Income of Families with 18-24 yr. Dependents Public (4)-(2)	Student Charges as a Percent of Income of Families with 18-24 yr. Dependents Private (5)-(2)	CPI
1967	$ 6,811	$ 7,923	$ 9,816	$1,063	$2,205	13.4	27.8	100.0
1968	7,189	8,469	10,452	1,117	2,321	13.2	27.4	104.2
1969	7,770	9,123	11,295	1,204	2,531	13.2	27.7	109.8
1970	8,268	9,624	12,063	1,288	2,739	13.4	28.5	116.3
1971	8,681	10,095	12,727	1,357	2,917	13.4	28.9	121.3
1972	9,276	10,900	13,392	1,458	3,038	13.4	27.9	125.3
1973	10,273	11,897	14,679	1,517	3,164	12.8	26.6	133.1
1974	11,025	12,561	16,005	1,617	3,386	12.9	27.0	147.7
1975	11,505	13,199	16,784	1,748	3,667	13.2	27.8	161.2
1976	12,199	14,164	18,384	1,854	3,896	13.1	27.5	170.5
Percent Change 1967-1976	+79.1	+78.8	+87.3	+74.2	+76.7	-2.2	-1.1	70.5

SOURCE: U.S. Bureau of the Census, Current Population Reports and National Center for Education Statistics data; U.S. Department of Commerce, Survey of Current Business.

a/ Family incomes are those reported in the Bureau of the Census, October Current Population Survey, in which detailed questions about education are asked. The traditional and more comprehensive reporting of incomes is done in March of each year. The Bureau of the Census reports that, for the above period, October median family incomes ranged from 82 to 86 percent of the median family incomes reported in March.

A census family is two or more persons related by blood, marriage, or adoption, and residing together. All such persons are considered members of the same family. Columns (2) and (3) are incomes of primary families. A primary family includes a head of the household (family designated) as one of its members. Excluded from the sample of primary families here are those in which the 18-24-year-old dependent is either the designated head, the wife, or married. Only those in which the 18-24-year-old dependent is attending college full time are included in Column (3).

TABLE II. AFTER-TAX FAMILY INCOME AND STUDENT CHARGES, 1967-1976

Year	After-Tax Income for Median Income Families a/ (dollars)		Student Charges as a Percent of After-Tax Family Income b/			
	With 18-24 Year-Old Dependents	With 18-24 Year-Old Dependents in College	Families with 18-24 Year-Old Dependents		Families with 18-24 Year-Old Dependents in College	
			Public Colleges	Private Colleges	Public Colleges	Private Colleges
1967	6,367 - 6,430	7,825 - 7,893	.17	.34 -.35	.13 -.14	.28
1968	6,651 - 6,722	8,161 - 8,217	.17	.35	.14	.28
1969	7,068 - 7,148	8,668 - 8,756	.17	.35 -.36	.14	.29
1970	7,510 - 7,608	9,304 - 9,415	.17	.36	.14	.29
1971	7,886 - 8,044	9,858 -10,031	.17	.36 -.37	.14	.29 -.30
1972	8,455 - 8,684	10,346 -10,601	.16 -.17	.35 -.36	.14	.29
1973	9,066 - 9,269	11,074 -11,309	.17	.34 -.35	.13 -.14	.28 -.29
1974	9,509 - 9,660	11,928 -12,104	.17	.35 -.36	.13 -.14	.28
1975	10,052 -10,224	12,606 -12,824	.17	.36	.14	.29
1976	10,707 -10,919	13,682 -13,939	.17	.36	.13 -.14	.28
Percent Change 1967-1976	+68.2 to +69.8	+74.9 to +76.6	0	+2.9 to +5.9	0	0

a/ CBO estimates assuming: (1) for federal income taxes--family of four taking standard deduction; (2) for FICA tax-one wage earner; and (3) for state and local taxes--interpolations from ACIR, "Significant Features of Fiscal Federalism 1976-77 Edition," p. 44 and Internal Revenue Service, "Statistics of Income-Individual Tax Returns," (several years).

b/ Derived using Attachment A cost figures.

TABLE III. PRICE CHANGES FOR VARIOUS COMPONENTS OF THE CONSUMER PRICE INDEX (CPI) 1967-1976

	(1)		(2)		(3)	(4)	
	Housing Costs		Energy Costs				
	Home-ownership	Rent	Fuel & Utilities	Gas & Motor Oil	Medical Care	1 + 2 + 3	CPI (Overall)
1967	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1968	105.6	102.4	101.3	101.7	106.0	---	104.2
1969	116.0	105.7	103.6	105.1	113.4	---	109.8
1970	128.5	110.1	107.7	106.2	120.6	---	116.3
1971	133.7	115.2	115.1	107.3	128.4	---	121.3
1972	140.1	119.2	120.3	108.8	132.5	---	125.3
1973	146.7	124.3	127.0	118.8	137.7	---	133.1
1974	163.2	130.6	150.3	158.8	150.5	---	147.7
1975	181.7	137.3	167.7	169.7	168.6	---	161.2
1976	191.7	144.7	182.8	176.7	184.7	182.0 a/	170.5

a/ The five components of the CPI were weighted by their proportional contribution to the overall CPI.